Stats in the Wild

Activity 1

Creature Features

Data moves

Grouping (using, creating or highlighting subsets)

Filtering (showing/ hiding subsets)

Ordering (sorting into an order)

Summarising (computing or calculating to describe a characteristic of a dataset)

Linking (identifying corresponding case(s) in one representation and another representation)

Inspecting (hovering, clicking on or locating an object to gain information)

Expanding datasets (adding data, merging or joining datasets)

Creating new variables (e.g. rates/ proportions from existing data)

Data forms

Choosing or creating a representation for a purpose

Finding and using relationships or patterns

Adapted from Hudson, R. A., Mojica, G. F., Lee, H. S., & Casey, S. (2024) *Data Moves as a Focusing Lens for Learning to Teach with CODAP*. Computers in the Schools, 1–26. https://doi.org/10.1080/07380569.2024.2411705

Overview

1. **Explore** decision trees and categorisation schemes
2. **Collect** data in the wild
3. **Create and tidy** a dataset
4. **Create** your own decision trees and categorisation schemes
5. **Evaluate and critique** others' work

You will need

- MWS Activity 1 Arthropod Photographs.pdf **(printed)**
- MWS Activity 1 Classification schemes.pdf **(printed)**
- Camera **(1 per student or group)**
- Printer **(preferably colour)**
- Ruler or tape measure
- *Seek* app **(pre-downloaded)**
- CODAP Software **(optional)**

Activity

1 **Explore** decision trees and categorisation schemes

In small groups, **look at the photographs** you have been given and **use the categorisation schemes** to try and identify which arthropods are in each image (all of the categorisation schemes are based on the same five arthropods). Even if you already know which arthropods are in the images, try and use the categorisation schemes as intended – as you will be making your own later!

An **arthropod** is a type of creature with no backbone (invertebrate) and an exoskeleton. They have segmented bodies and jointed limbs. Examples include spiders, ants, beetles, centipedes, wasps, dragonflies, cockroaches, and mosquitoes, as well as scorpions and crabs.

Which of the categorisation schemes are more useful, and why?

What do you notice about them that might cause problems for identifying arthopods?

2 **Collect** data in the wild

In small groups, go outside and **find arthropods to take pictures of**. Try looking under rocks or paving slabs, in compost heaps, on colourful flowers, or in leaf litter. Aim to take photographs of 5-10 different species and photograph them next to a ruler or tape measure so you can accurately measure/estimate length. Take multiple photographs of each arthropod so you can best identify its features.

Take care **not to disturb** wildlife any more than is necessary, and **do not remove** any creatures from their habitat.

Use the *Seek* app or Google Lens to **identify** each arthropod and **record** this information. When you return to the classroom, double-check the names of the arthropods you have photographed by researching them online or in books.

3 **Create and tidy** a dataset

Print your photos. Look at them and consider which features of the different arthropods are the same and which are different, for example:

- Length
- Main colour
- Whether their bodies are split into sections or not
- Whether they have wings or not
- How many legs they (usually) have
- Whether they have antennae or not

Which of these things do you think would be most helpful for making a classification diagram? Which might not be helpful?

Choose 5 or 6 of your photographs that you will use to create your categorisation scheme.

4 **Create** your own decision trees and categorisation schemes

Create a categorisation scheme so that someone else could correctly identify each of the arthropods you have photographed. This could be hand-drawn, or digital. Think about your experience of using the three different categorisation schemes with the photographs you were given, and some of the issues and questions that arose.

In your group, **design a draft** categorisation scheme for someone else to use, and **test it** with your photographs.

5 **Evaluate and critique** others' work

Try using **another group's categorisation scheme** to identify their arthropods. What did you find useful, and less useful, about their categorisation scheme? What changes might you suggest to make it easier to use? Make changes to your draft categorisation scheme or make a new version, **incorporating feedback**.